

AMENDMENT AND RESPONSE

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Serial No.: 10/777,955

Filing Date: February 12, 2004

Attorney Docket No. 125.025US02

Title: ELECTROLUMINESCENT DRIVER CIRCUIT

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of claims:

1. (Previously Presented) A method of operating an EL-lamp circuit, the method comprising:
storing energy on a first electrode of a EL-lamp with a power supply during a charging cycle; and
pumping the energy stored on the first electrode to a positive terminal of the power supply during a discharging cycle.
2. (Previously Presented) The method of claim 1, wherein pumping the energy stored on the first electrode of the load further comprises:
cycling on and off a discharge current path that couples the first electrode to ground;
when the discharge current path is cycled on, conducting current from the first electrode to the positive terminal of the power supply; and
when the discharge current path is cycled off, continuing to conduct current to the positive terminal of the power supply via a discharging inductor.
3. (Currently Amended) The method of claim 2, wherein the discharge current path is off longer than it is on during [a] the cycle.
4. (Previously Presented) The method of claim 1, further comprising:
storing energy on a second electrode of the EL-lamp with the power supply; and
pumping the energy stored on the second electrode to the positive terminal of the supply.
5. (Previously Presented) The method of claim 4, wherein pumping the energy stored on the second electrode of the load further comprises:

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cycling on and off a discharge current path that couples the second electrode to ground;
when the discharge current path is cycled on, conducting current from the second
electrode to the positive terminal of the power supply with the use of an inductor; and
when the discharge current path is cycled off, conducting current to the positive terminal
of the battery via the inductor.

6. (Previously Presented) A method of operating a cycle of an EL-lamp driver circuit, the
method comprising:

placing a select amount of positive charge on a first electrode of a load with a power
supply with the use of a charging inductor;
discharging the positive charge on the first electrode to a positive terminal of the power
supply with the use of a discharging inductor;
placing a select amount of positive charge on a second electrode of the load with the
power supply with the use of the charging inductor; and
discharging the positive charge on the second electrode to the positive terminal of the
power supply with the use of the discharging inductor.

7. (Previously Presented) The method of claim 6, wherein placing a select amount of positive
charge on a first electrode of a load further comprises:

cycling on and off a charging current path through the charging inductor that is coupled
between the positive terminal of the power supply and a negative terminal of the power supply;
and
when the charging current path is off, coupling charge to the first electrode.

8. (Previously Presented) The method of claim 6, wherein placing a select amount of positive
charge on a second electrode of a load further comprises:

cycling on and off a charging current path through the charging inductor that is coupled
between the positive terminal of the power supply and a negative terminal of the power supply;
and
when the charging current path is off, coupling charge to the second electrode.

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9. (Currently Amended) The method of claim 6, wherein discharging the positive charge on the first electrode of the load further comprises:

cycling on and off a discharge current path through the discharging inductor that couples the first electrode to [a] the positive terminal of the power supply; and

when the discharge current path is cycled on, conducting current from the first electrode to the positive terminal of the power supply.

10. (Previously Presented) The method of claim 6, wherein discharging the positive charge on the second electrode of the load further comprises:

cycling on and off a discharge current path through the discharging inductor that couples the second electrode to ground; and

when the discharge current path is cycled on, conducting current from the second electrode to the positive terminal of the power supply.

11. (Original) A method of operating a cycle of an EL-lamp driver circuit, the method comprising:

placing a select amount of positive charge on a first electrode of a load with a power supply;

discharging the positive charge on the first electrode to a positive terminal of the power supply;

placing a select amount of negative charge on the first electrode of the load with the power supply; and

discharging the negative charge on the first electrode.

12. (Original) The method of claim 11, wherein placing a select amount of positive charge on the first electrode further comprises:

turning on a first current path between the positive terminal of the power supply and a first side of an inductor; and

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cycling on and off a second current path between a second side of the inductor and ground.

13. (Original) The method of claim 12, wherein the first current path is turned on by a first transistor and the second current path is cycled on and off by a second transistor.

14. (Original) The method of claim 11, wherein discharging the positive charge on the first electrode further comprises:

cycling on and off a third current path between the first electrode and the positive terminal of the power supply.

15. (Original) The method of claim 14, wherein the third current path is cycled on and off by a transistor.

16. (Original) The method of claim 11, wherein placing a select amount of negative charge on the first electrode further comprises:

turning on a second current path between a second side of an inductor and ground; and

cycling on and off a first current path between the positive terminal of the power supply and a first side of the inductor.

17. (Original) The method of claim 16, wherein the second current path is turned on by a second transistor and the first current path is cycled on and off by a first transistor.

18. (Previously Presented) A method of operating an EL-lamp circuit, the method comprising:

storing energy from a power supply on an EL-lamp during a charging cycle; and

returning energy stored on the EL-lamp to the power supply during a discharge cycle via inductive pumping.

19. (Previously presented) The method of claim 18, wherein storing energy from the power supply on an EL-lamp during a charging cycle further comprises:

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cycling a first transistor in response to a first digital signal.

20. (Previously presented) The method of claim 19, further comprising:

inductively pumping energy to the EL-lamp in response to the cycling of the first transistor.

21. (Previously presented) The method of claim 19, wherein the energy stored on the EL-lamp during a charging cycle is $1/2V^2C$, wherein V is the voltage and C is the capacitance of a load of the EL-lamp.

22. (Previously presented) The method of claim 18, wherein storing energy from the power supply on an EL-lamp during a charging cycle further comprises:

selectively creating a charging path to the EL-lamp.

23. (Previously presented) The method of claim 22, wherein selectively creating a charging path further comprises:

selectively activating one or more switches.

24. (Previously presented) The method of claim 18, wherein returning energy stored on the EL-lamp to the power supply during a discharge cycle further comprises:

selectively providing a discharge path to the power supply during the discharge cycle.

25. (Previously presented) The method of claim 24, wherein selectively providing a discharge path to the power supply during a discharge cycle further comprises:

selectively switching one or more switches.

26. (Previously presented) The method of claim 24, wherein the discharge cycle is every half cycle.

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27. (Previously presented) The method of claim 18, wherein returning energy stored on the EL-lamp to the power supply during a discharge cycle further comprises:

cycling a second discharge transistor in response to a second digital signal.

28. (Previously presented) The method of claim 27, further comprising:

inductively pumping energy stored on the EL-lamp back to the power supply in response to the cycling of the second transistor.

29. (Previously presented) The method of claim 18, wherein returning energy stored on the EL-lamp to the power supply during a discharge cycle further comprises:

selectively creating a discharge path to the power supply.

30. (Previously presented) The method of claim 29, wherein selectively creating a discharge path to the power supply further comprises:

activating one or more switches.

31. (Previously presented) The method of claim 18, further comprising:

providing a charging path to the EL-lamp during the charging cycle; and

providing a discharging path to the power supply during the discharging cycle.

32. (Previously presented) The method of claim 31, further comprising:

cycling a first transistor in response to a first digital signal during the charging cycle; and

cycling a second transistor in response to a second digital signal during the discharging cycle.

33. (Previously presented) The method of claim 32, further comprising:

during an off period of the second digital signal, inductively conducting current from a negative terminal of the power supply to a positive terminal of the power supply.

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34. (Previously presented) The method of claim 32, wherein the frequency of the first digital signal is different than the frequency of the second digital signal.

35. (Previously presented) The method of claim 32,

wherein an on portion of a cycle of the second digital signal is shorter than an off portion of the cycle of the second digital signal.

36. (Previously Presented) A method of operating an EL-lamp circuit, the method comprising:

selectively providing a charging path from a power supply to the EL-lamp during a charging cycle;

cycling a first transistor in response to a first digital signal during the charging cycle;

storing energy from a power supply on an EL-lamp during the charging cycle;

selectively providing a discharging path from the EL-lamp to the power supply during a discharging cycle;

cycling a second transistor in response to a second digital signal during the discharging cycle; and

returning energy stored on the EL-lamp to the power supply during the discharge cycle via inductive energy pumping.

37. (Previously presented) The method of claim 36, further comprising:

inductively pumping energy to the EL-lamp in response to the cycling of the first transistor.

38. (Previously Presented) The method of claim 36, wherein the inductive energy pumping is controlled by the cycling of the second transistor.

39. (Previously presented) The method of Claim 36, wherein selectively providing a charging path from the power supply to the EL-lamp during the charging cycle further comprises:

selectively activating one or more switches.

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40. (Previously presented) The method of claim 36, wherein selectively providing a discharging path from the El-lamp to the power supply during the discharging cycle further comprises:
selectively activating one or more switches.